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**INTRODUCTION**

**ORGANIZATIONAL, INTERMEDIATE AND DEPOT MAINTENANCE**

**WITH ILLUSTRATED PARTS BREAKDOWNS**

**EMERGENCY PERSONNEL AND DROGUE PARACHUTE SYSTEMS**

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### **1. PURPOSE AND SCOPE.**

a. This manual provides organizational, intermediate and depot maintenance instructions, with Illustrated Parts Breakdowns for Emergency Personnel and Drogue Parachute Systems used in naval aircraft.

b. This manual contains information and instructions pertaining to configuration, function, application, maintenance and storage of these parachutes.

c. The above information and procedures are presented in Work Packages (WPs). Each WP contains all information, including tables of required materials and equipment, necessary to complete required maintenance tasks. WPs are designed to be compatible with the Source, Maintenance, and Recoverability Codes contained in the Illustrated Parts Breakdowns.

### **2. COMMENTS AND RECOMMENDATIONS.**

a. Comments and recommendations shall be submitted on Technical Publications Deficiency Report (OPNAV 4790/66).

### **3. DRAWINGS.**

a. Requests for engineering drawings will be made per NAVAIRINST 5600.15.

### **4. QUALITY ASSURANCE PROCEDURES.**

a. Quality Assurance (QA) points are provided for critical operations. When a procedural step is followed by "(QA)"

there is a quality assurance requirement. Verifying completion of QA steps may be delayed by QA if their satisfactory completion is verified in later steps. In no case shall an Aircrew Survival Equipmentman perform his own quality assurance inspection.

### **5. NAVAIR TECHNICAL PUBLICATIONS.**

a. Procedures to be used by naval activities and other Department of Defense activities requiring NAVAIR technical manuals are defined in NAVAIR 00-25-100 and NAVAIR 5605.5A.

b. To automatically receive future changes and revisions to NAVAIR technical manuals, an activity must be established on the Automatic Distribution Requirements List (ADRL) maintained by the Naval Air Technical Data and Engineering Service Command (NATEC). To become established on the ADRL, notify your activity central technical publications librarian. If your activity does not have a library, you may establish your automatic distribution requirements by contacting the Commanding Officer, Naval Air Technical Data and Engineering Service Command (NATEC), Naval Air Station North Island, P. O. Box 357031, Building 90 Distribution, San Diego, CA 92135-7031. Annual reconfirmation of these requirements is necessary to remain on automatic distribution. Please use your NATEC assigned account number whenever referring to automatic distribution requirements.

c. If additional or replacement copies of this manual are required with no attendant changes in the ADRL, they may be ordered by submitting requisitions to the Naval Inventory Control Point - Philadelphia.

**6. WARNINGS, CAUTIONS AND NOTES.**

a. Operating procedures or practices that, if not correctly followed, could result in injury to personnel or damage to equipment are highlighted by applicable notes, cautions or warnings. A note refers to an operating procedure or any information that requires emphasis. A note shall appear before text to which it applies. A caution refers to an operating procedure which, if not correctly observed, could cause equipment damage. A warning refers to an operating procedure which, if not correctly observed, could cause injury to personnel. Both cautions and warnings precede text to which they apply.

**7. ILLUSTRATED PARTS BREAKDOWN.**

a. The illustrated parts breakdowns in this manual list and describe the parts necessary for support of the Emergency Personnel and Drogue Parachute Systems.

**8. ATTACHING PARTS.**

a. Attaching parts are listed immediately after the part they attach and are separated by a caption (ATTACHING PARTS) which is placed three indents to the right of the nomenclature of the part to be attached. Quantities of attaching parts are total quantities per individual unit.

**9. SOURCE, MAINTENANCE AND RECOVERABILITY (SM&R) CODES.**

a. SM&R codes, as assigned by Naval Air Systems Command, have been applied to the Group Assembly Parts Lists and are shown in the proper code column. Definitions of SM&R codes used are contained in NAVAIRINST 4423.11 and (Table 1).

**10. USABLE ON CODE.**

a. This column contains suitable coding for assemblies and parts to indicate specific usability by serial number, type, model or series numbers of the articles for which the breakdown is prepared. The absence of a code in the Usable on Code column indicates that the parts shown are usable as replacements on all models covered. An asterisk (\*) in the Usable on Code column, for parts that are listed under the same index number, indicates that all such parts are interchangeable and that the part or parts that are not asterisked are interchangeable and preferable to the asterisked parts. If all parts are asterisked, they are completely interchangeable; no part is preferable. An asterisk and usable on code (\*B) indicate that interchangeability is limited to the extent of the usable on code.

**11. VENDOR CODE.**

a. The description of a vendor supplied item includes a five-digit manufacturer's identification code. To convert this five-digit code to a manufacturer's name, reference the Federal Supply Code for Manufacturers, which consists of two Cataloging handbooks. The H4-1 alphabetically lists manufacturer's name and his proper code, and the H4-2 numerically lists the codes and gives the corresponding manufacturer. This code is omitted for all prime contractor's parts and all government standard parts.

**12. GLOSSARY.**

a. The following is a list of all nonstandard abbreviations, terms and symbols used in this manual.

**ACID.** A fundamental chemical class distinguished by having reactive hydrogen radicals (pH below 7.0). Acids can be extremely corrosive to metal and damaging to fabric.

**ADAPTER, HARNESS.** A rectangular metal fitting with a fixed crossbar used primarily as an anchoring point.

**ADAPTER, HARNESS FRICTION.** A rectangular metal fitting with a movable center bar (friction grip). Facilitates quick adjustment of a harness by the wearer.

**ALKALINE.** A substance which is the opposite of an acid, also known as a base. Also, any substance which has the properties of an alkali (metallic hydroxide).

**ANEROID.** A corrugated metal capsule used in parachute automatic releases for sensing atmospheric pressure. The aneroid will initiate operation of the release at a preset altitude.

**ANTI-SQUID LINE.** See LINE, ANTI-SQUID.

**AWL.** A pointed tool for piercing small holes in cloth, leather, wood and other soft materials.

**BACKSTITCH.** A stitch made by inserting the needle a stitch length to the right and bringing it up an equal distance to the left. Also, sewing back over a row of stitches.

**BALL, CABLE RETAINING.** A steel ball which is swaged to the ripcord cable and secures the ripcord handle to the cable.

**BAND, LATERAL.** Webbing inserted in the canopy skirt and vent hems to reinforce edges and distribute load.

**BAND, RUBBER, RETAINING.** A rubber band used to hold suspension lines in the container or in the faked line together.

SOURCE (D012)				MAINTENANCE			
1st POSITION		2nd POSITION		3rd POSITION		4th POSITION	
P	PROCURE	A	REPLENISH	O	REPLACE OR USE AT ORG LEVEL	Z	NO REPAIR (CONSUMABLE)
		B	INSURANCE				
		C	CURE-DATED				
		D	INITIAL	F	REPLACE OR USE AT IMA LEVEL	B	RECONDITION BY ADJUSTMENT, CALIBRATION, LUBRICATION, PLATING, ETC.
		E	END ITEM GSE/STOCKED	H			
		F	GSE/NOT STOCKED	G			
K	REPAIR KIT COMPONENT	F	ORG/IMA	L	REPLACE OR USE AT SPECIALIZED IMA	O	REPAIR AT ORG LEVEL
		D	DEPOT				
		B	BOTH KITS				
M	MANUFACTURE	O	ORG	D	REPLACE OR USE AT DEPOT	F	REPAIR AT IMA LEVEL
A	ASSEMBLE	F	AFLOAT			H	
		H	ASHORE			G	
		G	BOTH			L	REPAIR AT SPECIALIZED IMA
X	MISC	D	DEPOT				
		A	REQUEST NHA	Z	NOT REQUIRED THIS APPLICATION	D	REPAIR AT DEPOT OR COMMERCIAL
		B	OBTAIN FROM SALVAGE OR ONE TIME BUY				
		C	DIAGRAMS-SCHEMATICS, INSTALL DWGS				

RECOVERABILITY (D013C)		SERVICE OPTION (D012A)	
5th POSITION		6th POSITION	
O	REPAIRABLE ITEM. CONDEMN AT ORGANIZATIONAL LEVEL.	1 2 3	APPLIES TO ENGINES ONLY. IDENTIFIES THE HIGHEST (1) TO LOWEST (3) LEVEL OF MAINTENANCE WHICH CAN REPLACE (3rd POSITION OF SM&R CODE) THE ITEM.
F H G	REPAIRABLE ITEM. CONDEMN AT INTERMEDIATE LEVEL INDICATED.	4 5 7	SAME AS ABOVE. IN ADDITION, ITEM IS A FLR WITH A UNIT COST OF OVER \$5000. THESE CODES ARE NO LONGER ASSIGNED TO NEW, NON-FAMILY RELATED ITEMS.
L	REPAIRABLE ITEM. CONDEMN AT SPECIALIZED INTERMEDIATE LEVEL.	6	NORMALLY PROCURED AND STOCK NUMBERED BUT ORGANIC CAPABILITY EXISTS FOR EMERGENCY STOP-GAP REQUIREMENTS.
D	REPAIRABLE ITEM. CONDEMN AT DEPOT OR CONTRACTOR FACILITY.	E	END-TO-END TEST REQUIRED BY IMA PRIOR TO BCM ACTION.
		J	FLR OR CONSUMABLE ITEM. CHANGE 5th POSITION SM&R CODE TO "D" UNDER PICA/SICA. NAVAIR APPROVAL REQUIRED.
A	SPECIAL HANDLING REQUIRED. CONTACT ITEM MANAGER FOR DISPOSAL INSTRUCTIONS	8	SAME AS "J" ABOVE EXCEPT USED FOR ENGINES ONLY. APPLIES TO 2nd LEVEL OF IMA.
		9	SAME AS "J" ABOVE EXCEPT USED FOR ENGINES ONLY. APPLIES TO 3rd LEVEL OF IMA.
Z	NON-REPAIRABLE ITEM. CONDEMN AT LEVEL IN 3rd POSITION.	M	ITEM IS A FLR WITH A UNIT COST OF OVER \$5000. THESE CODES ARE NO LONGER ASSIGNED TO NEW, NON-FAMILY RELATED ITEMS.
		N	ASSIGNED TO XB SOURCE CODE AND INDICATES ITEM IS PROCURED LOCALLY. NOT STOCKED IN THE SUPPLY SYSTEM.
		T	ASSIGNED TO TRAINING DEVICES WITH SOURCE CODE OF "PD". INDICATES ITEM IS NOT A PROCURABLE SPARE. NSN IS ASSIGNED ONLY TO PERMIT VISIBILITY OF REPAIR PART RELATIONSHIP.

Table 1. NAVY APPLICATION OF JOINT SERVICES UNIFORM SM&amp;R CODES

**BARREL, AUTOMATIC PARACHUTE RIPCORDERELEASE.** That part of an automatic parachute ripcord release which houses the cartridge and piston, or spring and piston.

**BARTACK.** A concentrated series of zig-zag like stitches used to reinforce points of stress. A bartack shall have 28 stitches per half inch.

**BASEBALL STITCH.** See **STITCH, BASEBALL.**

**BASTING STITCH.** See **STITCH, BASTING.**

**BEESWAX.** A wax generally containing paraffin that is applied cold or melted to thread to prevent raveling or cloth unknotting and to make thread easier to sew.

**BINDING.** A piece of tape or fabric folded over and stitched to a raw edge of cloth to prevent raveling or fraying.

**BODKIN.** A large-eyed, blunt needle instrument for inserting thread, tape, ribbon or line thru a loop, hem or channel. Used to feed suspension lines thru canopy radial seams or to stow suspension line bights in certain parachute container assemblies.

**BOTTOM, FALSE.** A piece of cloth sewn to the inside of a pack to retain the frame. It also serves as a base for attaching suspension line hesitator loops.

**BOXSTITCH.** See **STITCH, BOX.**

**BRAID.** A narrow band of interlaced strands.

**BUNCHED STITCHING.** Stitches too close or more stitches per inch than required.

**BURL.** A knot or lump in thread or cloth.

**BURN, FRICTION.** A hard spot on the suspension line caused by two lines rubbing together at high speeds, generally off-color and brittle.

**BUTTERFLY REINFORCEMENT.** See **V-TAB.**

**BUTTONHOLE STITCH.** See **STITCH, BUTTONHOLE.**

**CABLE, ARMING, AUTOMATIC PARACHUTE RIPCORDERELEASE.** A cable which, when attached to the ejection seat or other designated point, arms the automatic parachute ripcord release at seat/man separation.

**CABLE, POWER, AUTOMATIC PARACHUTE RIPCORDERELEASE.** A cable covered by a housing, which transmits the force from the automatic parachute ripcord release to the ripcord cable.

**CABLE RETAINING BALL.** See **BALL, CABLE RETAINING.**

**CABLE, RIPCORDERELEASE.** A flexible cable joining the locking pins and ripcord handle.

**CANOPY.** The main supporting surface of a parachute which, when opened, reduces the rate of descent. It is usually made of nylon and includes a framework of cords, called suspension lines, from which the load is suspended.

**CANOPY, CONICAL.** A canopy constructed in the shape of a cone. See also **CANOPY.**

**CANOPY CLOTH.** See **CLOTH, CANOPY.**

**CANOPY, FLAT CIRCULAR.** A canopy which has the shape of a flat circle or disk when spread out. See also **CANOPY.**

**CANVAS.** A heavy, closely-woven cloth of linen, cotton or synthetic fiber.

**CASING (SLEEVE).** The outer woven cover of the suspension line.

**CHANNEL, CANOPY.** The space or opening formed by the overlapping of cloth in the making of radial seams. The suspension lines pass thru the channels and are retained in position. The channels aid in transmitting load from the lines to the cloth.

**CLAMP, DUAL HOUSING.** A metal clamp located on the outside of the end flap of back-type parachutes. The clamp secures the ripcord cable and power cable to the container end flap.

**CLEVIS.** A U-shaped metal fitting with a hole in each end to receive a pin or bolt.

**CLIP.** A device which fastens, holds together or retains, for example, a clip is tacked to a riser and holds the ripcord housing in place.

**CLOTH, CANOPY.** The cloth used in parachute canopies. It is woven to withstand the impact of air pressure when the parachute opens. The canopy cloth is woven from nylon yarns, usually in a ripstop weave. See also **CANOPY.** (Ref. MIL-C-7020, Cloth, Nylon, Parachute).

**CLOTH, NYLON RIP-STOP.** A type of nylon cloth utilized in canopy manufacture. The weave pattern of the nylon cloth consists of reinforced ribs, in both the warp and the filling, forming a uniform pattern of squares. The cloth is designed to keep hole damage to a minimum when rips or tears develop in the canopy.

**CLOVERLEAF HANDLE.** A ripcord handle that is used on chest and integrated back-type parachutes. It is shaped in the form of a cloverleaf.

**COLLAR, VENT.** A strip of nylon cloth. One edge is sewn to the vent hem of the canopy so that a collar or cylinder is formed above the top of the parachute. The other edge is hemmed to form a channel for the insertion of a molded rubber ring.

**COMPONENT (PART).** Item of equipment making up part of an assembly; for example, a ripcord housing is a component part of a ripcord assembly.

**CONE, LOCKING.** A small, smooth, coneshaped metal post sewn to the flaps of the container or inside the vane-type pilot parachute. The cone has a horizontally drilled hole a short distance from the top to admit a temporary locking pin or the ripcord pin. The pilot parachute locking cone contains two holes. The flange contains holes for securing purposes.

**CONFLUENCE POINT.** A coming or run together of two or more lines.

**CONICAL CANOPY.** See CANOPY, CONICAL.

**CONTAINER.** An assembly that encloses and protects the canopy, suspension lines and risers until the parachute is opened. Sometimes called the pack assembly.

**CONTAINER, HARDSHELL.** A container which has a rigid plastic or fiber body with cloth end and side flaps, designed to withstand high wind blast conditions.

**CONTAINER STIFFENER.** See STIFFENER, CONTAINER.

**CONTROLLER DROGUE.** A small parachute which is used to extract the stabilizer drogue parachute.

**CORE OVERLAP.** During suspension line manufacture, the insertion of an incoming core yarn which runs parallel to a running out yarn, and results in two core yarn ends protruding thru the casing a distance of about two to six inches. These ends are normally cut off during the final phase of parachute suspension line manufacture.

**CORDS, CLOSING.** Type I nylon cord about 18 inches long used as an aid in the closing of the parachute container.

**CROSS CONNECTOR STRAP.** See STRAP, CROSS CONNECTOR.

**CROSS BOX.** A sewing pattern.

**CROSS SEAM.** See SEAM, DIAGONAL.

**CROWN.** A cloth panel used to cover the peak of a vane-type pilot parachute. Also, the portion of the main canopy surface near the peak.

**D-RING.** A metal fitting shaped in the form of a letter "D." A D-Ring on a harness connects to a chest type parachute assembly by means of snap fittings.

**DART.** A short, tapered seam.

**DEFLATION POCKETS.** See POCKETS, DEFLATION.

**DEPLOYMENT BAG.** An envelope, usually fabric, and usually enclosed in a parachute pack, containing a parachute canopy. Means, may, or may not, be provided for stowage of suspension lines. A drogue piston lifts a deployment bag away from a parachute pack, causing the suspension lines to be extended before the canopy emerges from the deployment bag.

**DIAMETER.** The greatest straight distance across a circle; specifically, the greatest distance across a flat canopy, from skirt to skirt, measured when the canopy is lying flat. Used to designate the size of a flat circular canopy.

**DIP.** A line or group of lines passing thru a group of lines. Also, a group of suspension lines not in proper continuity.

**DROGUE, CONTROLLER.** See CONTROLLER DROGUE.

**DROGUE PARACHUTE.** See PARACHUTE, DROGUE.

**EJECTION SEAT.** An emergency escape seat for propelling an occupant out and away from the aircraft by means of an explosive charge or rocket motor.

**EJECTOR BOARD.** A small, rectangular board with rounded edges and a grommet in one end, used on Martin Baker parachutes. It serves as a firm place for the pilot parachute to spring from during opening.

**END OUT (MISSING END).** A warp yarn missing from a portion of, or the entire length of, cloth.

**END TAB.** See **TAB, END.**

**EYE.** A small, steel-wire loop; for example, the loops attached to the parachute container, into which a hook on a container spring opening band is fastened.

**EYELET.** A metal reinforcement for a hole in cloth, similar to a grommet, except thinner and smaller, and having no washer. The eyelet is used to reinforce lacing holes in small covers, etc.

**FAKE.** To fold a line, rope, cord or hawser in a back and forth fashion.

**FALSE BOTTOM.** See **BOTTOM, FALSE.**

**FASTENER, DIRECTIONAL.** A snap fastener which can be engaged or released only in one direction.

**FASTENER, NON-DIRECTIONAL.** A snap fastener which can be engaged or released by applying pressure or pull from any angle.

**FASTENER, SLIDE.** A type of fastener made of two lengths of tape with a series of metal or plastic scoops fastened to one side of each. A metal slide is provided which causes the scoops to lock in place as the fastener is closed or to separate as the fastener is opened.

**FERRULE.** A cap or ring used to finish the end of a housing; for example, the finished ends of a ripcord housing.

**FID.** A small, flat hand tool of metal or wood used during the packing process to straighten end flaps and to insert corner flaps into a finished pack.

**FILLING.** Threads which are perpendicular to selvage edges and extend across the width of cloth.

**FITTING, CANOPY QUICK-RELEASE.** A device which connects the canopy and risers to the harness, permitting the aircrewmember to disengage, on instant response, from the canopy.

**FITTING, OVERRIDE DISCONNECT.** A directional fitting used on the NES-12 parachute assemblies that connects the external pilot parachute and the pilot parachute.

**FITTING, QUICK-RELEASE.** A device used to connect and release on instant response.

**FITTING, SWAGE.** A connection, adapter or pin which is fastened to a cable by pressure. It is applied by means of a machine which compresses the fitting, causing it to tightly grip the cable or wire to which it is being attached.

**FLAP, CORNER.** One of the small, rectangular cloth tabs which are part of the container side flaps and act as protection and reinforcement of the container corners when the parachute is packed also known as a corner keeper.

**FLAP, END.** A cloth extension on the short sides of the container base which folds over to enclose the canopy. One of the end flaps is usually designated as the ripcord end flap.

**FLAP, SIDE.** A cloth extension on each of the long sides of the container base, which folds over and encloses the canopy. Each side flap is designated according to the fittings it carries, such as "locking cone side flap" or "grommet side flap."

**FLARING.** The process of opening or widening; for example, the method of splitting, taping and stitching the ends of webbing in order to widen and prevent from slipping thru an adapter.

**FLAT CIRCULAR CANOPY.** See **CANOPY, FLAT CIRCULAR.**

**FRAYED (SUSPENSION LINE).** A fuzzy condition in which short lengths or pieces of thread or yarn protrude from the surface of the suspension line.

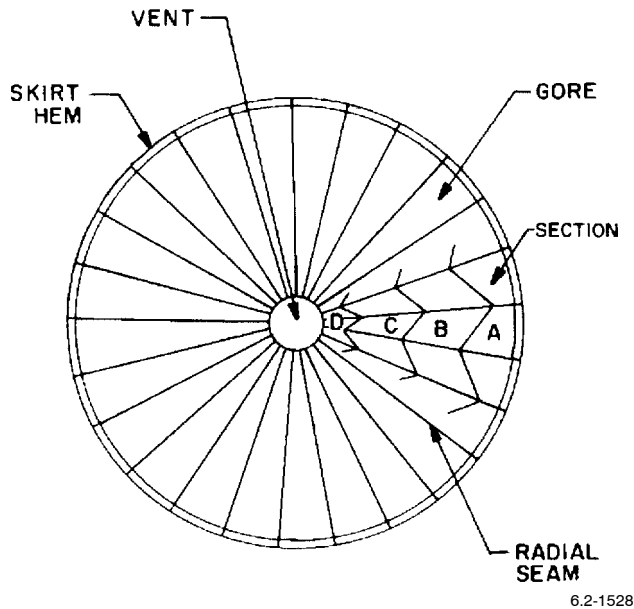
**FRICTION BURNS.** See **BURNS, FRICTION.**

**GORE.** That portion of the canopy located between two adjacent radial seams and the vent and skirt hem. It consists of cloth sections sewn together (Figure 1).

**GROMMET.** A metal eye and washer used to reinforce a hole in material; for example, grommets on container side flaps.

**GUIDE TUBE.** A narrow tube used to guide the vane type pilot parachute grommet over its locking cone.

**HANDLE, RIPCORD.** The handle secured to the ripcord cable and retained in a pocket located on the harness or container. Pulling of the handle begins the process of container and parachute opening. Often referred to as handpull or grip.



**Figure 1. Gore**

**HARDSHELL CONTAINER.** See CONTAINER, HARDSHELL.

**HARNESS ADAPTER.** See ADAPTER, HARNESS.

**HARNESS, CHEST-TYPE.** A harness assembly used with attachable, chest-type parachutes.

**HARNESS FRICTION ADAPTER.** See ADAPTER, HARNESS FRICTION.

**HARNESS MAINSLING.** The main load carrying member of the harness. Formed by two lengths of webbing, it is routed from the shoulder adapters of D-Rings down across the seat, up the side ending at the opposite adapters of D-Rings.

**HEM.** A border or reinforced edge formed by folding cloth back and securing it, usually by sewing, for example, vent and skirt hem of a parachute canopy.

**HOLE, CLOTH DAMAGE.** Three or more warp and/or filling threads broken at the same location.

**HOOK, PACKING.** A special hook used to draw suspension lines into place in hesitator loops.

**HOOK, TENSION.** Hooks used to retain the connector links during parts of the packing procedure.

**HORIZONTAL BACK STRAP.** See STRAP, HORIZONTAL BACK.

**HOUSING, RIPCORD.** A flexible steel tube encasing the ripcord cable, used to protect against accidental release or damage and to serve as a cable guide. Integrated ripcord assembly housings are constructed of vinyl-coated flexible tubing.

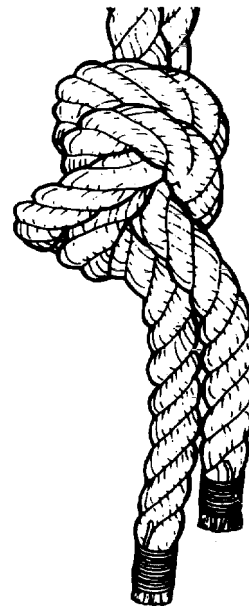
**INNER CORE.** Five to nine internal yarns (number depending on type) for suspension lines which are covered by a woven sleeve or casing.

**KEEPER.** Small strip of tape or loop used to retain an object, for example, riser and back pad keepers.

**KEEPER, CORNER.** See FLAP, CORNER.

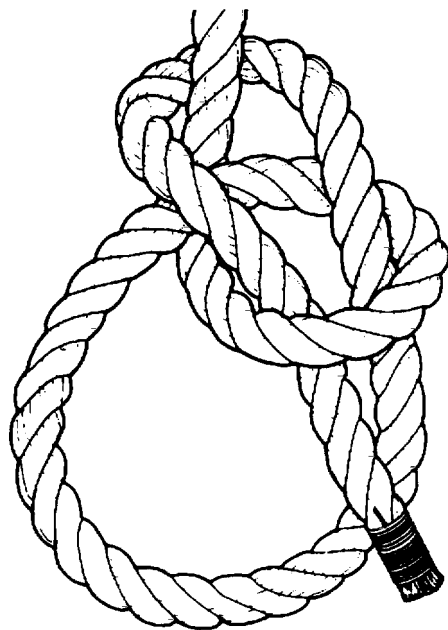
**KICKPLATE.** A platform on the NES-8B parachute container which serves as a firm place for the pilot parachute to spring from during opening.

**KNOT, BINDER.** The simplest method of joining two threads or lines. The two ends are placed side by side and a simple, overhand knot is then tied in both lines simultaneously. It will not slip when drawn tightly. Also called a thumb knot (Figure 2).



**Figure 2. Binder Knot**

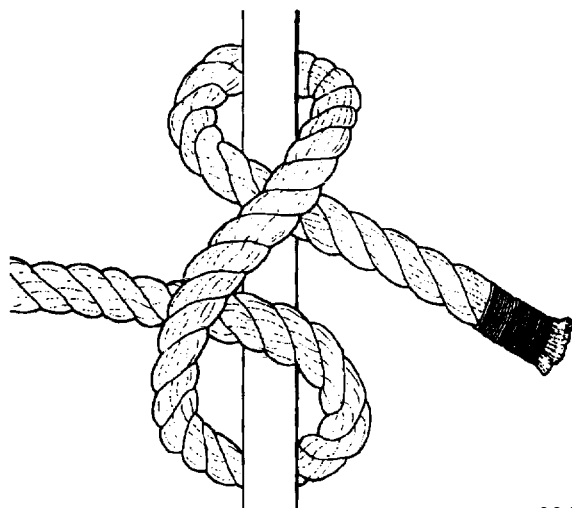
**KNOT, BOWLINE.** A knot formed by making a small overhand loop a desired distance from the end of the line. The end of the line is then passed thru the loop from the underside of the main part of the line and back thru the small loop. When this knot is drawn tight, it will not slip but still can be easily untied (Figure 3).



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**Figure 3. Bowline Knot**

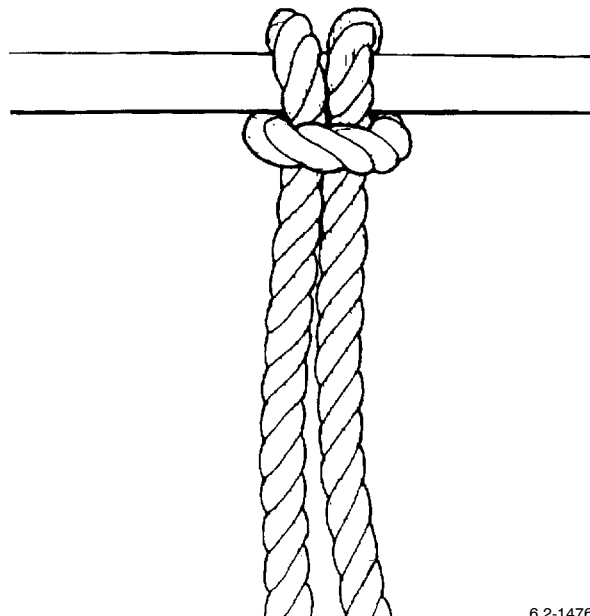
**KNOT, CLOVE-HITCH.** A knot formed by making one turn around a post, bringing the end across the line, continuing around the post a second time and passing the end under the second loop. Used to tie suspension lines to connector links (Figure 4).



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**Figure 4. Clove-Hitch Knot**

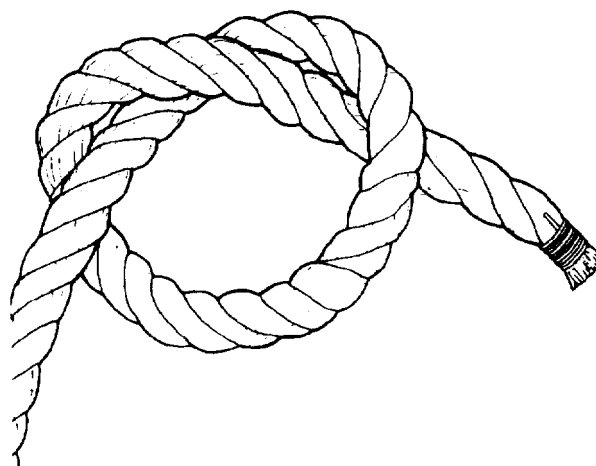
**KNOT, LARK'S HEAD.** A knot formed around an attachment ring or bar by passing the free ends of the line around the bar or thru the ring and then thru a loop or bight in the line. This knot is used to attach pilot parachute connector straps (Figure 5).



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**Figure 5. Lark's Head Knot**

**KNOT, OVERHAND.** A simple knot tied in the end of a line by forming a loop and passing the end over and down thru the loop (Figure 6).

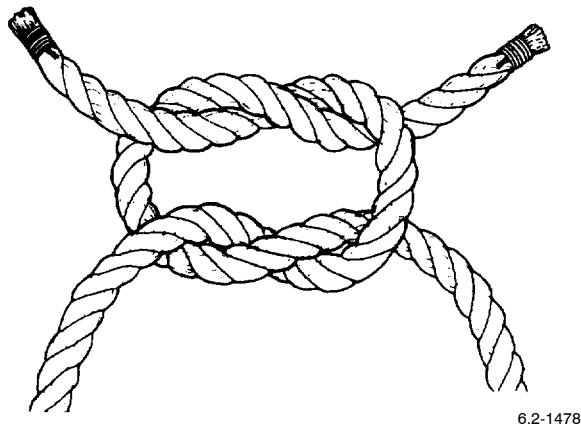


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**Figure 6. Overhand Knot**

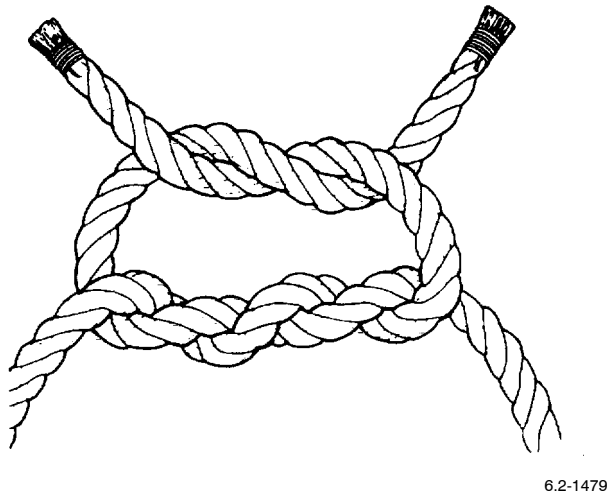
**KNOT, SQUARE.** A knot formed by passing the end of the cord in the left hand over and under the end in the right hand and then reversing the process by passing the end in the right hand over and under the one in the left hand (Figure 7).





**Figure 7. Square Knot**

**KNOT, SURGEON'S.** The surgeon's knot is similar to the square knot, except that the first overhand tie is wrapped twice around the cord or line (Figure 8).



**Figure 8. Surgeon's Knot**

**LE-MOIGNE SLOTS.** Provides directional control and forward velocity on command.

**LINE, ANTI-SQUID.** A line attaching two suspension line connector links to canopy vent lines on some parachute assemblies. The anti-squid lines are shorter than suspension lines and prevent the main canopy from squidding by bearing the load of the drogue parachute until the main canopy is fully opened. See also **SQUIDDING**.

**LINE, DROGUE LINK.** A line connecting the withdrawal line to the drogue parachute on MBEU systems which do not employ a guillotine. The drogue link line

contains a slide disconnect pin which will separate the line and withdrawal line in case of manual parachute actuation.

**LINE, SHORT ANTI-SQUID.** A Martin-Baker patent improved anti-squid line, also called a pull down vent line. See **LINE, ANTI-SQUID**.

**LINE, SUSPENSION.** Nylon cords which connect the canopy of the parachute to the harness assembly.

**LINE, VENT.** Nylon cord which crosses the vent opening of a canopy.

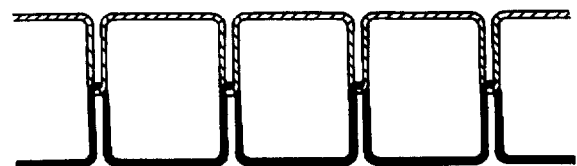
**LINE, WITHDRAWAL.** A line connecting the stabilizer drogue on the ejection seat to the locking pins and canopy vent on Martin Baker parachute assemblies. The line opens the container and withdraws the canopy during normal ejection operation.

**LINK, CONNECTOR.** A small, releasable, rectangular metal fitting used to connect the lift webs and suspension lines.

**LINK, CONNECTOR WITHDRAWAL LINE.** Nylon webbing with loops sewn in both ends. The withdrawal line connector link attaches the withdrawal line to the apex of the canopy and large loop in shortened anti-squid line.

**LOCK, RIPCORD PIN.** The ripcord pin lock is used in conjunction with the ripcord pin pull test. The lock is designed in such a manner as to allow initial movement of the ripcord pins but does not permit them to totally disengage.

**LOCKSTITCH.** A common sewing-machine stitch formed when the thread in the needle goes thru the material and connects with the bobbin thread. The needle and bobbin thread should lock in the center of the material thickness (Ref. ASTM-D-6193, Type 301) (Figure 9).



**STITCH TYPE 301**

6.2-1622

**Figure 9. Lockstitch**

**LOCKER, WET.** See **WET LOCKER**.

**LONG BAR.** A long metallic or wooden bar used in parachute packing and used as an aid in closing a parachute container.

**LOOP.** A warp or filling thread pulled out to form a loop on a cloth surface.

**LOOP, HESITATOR.** One of a series of webbing or tape loops which holds suspension lines in an orderly position in the container when the parachute is packed and which pays the lines out in sequence for orderly deployment of the canopy assembly.

**LOOP, RETAINING.** Webbing or tape loop used to hold folded lines or excess webbing in position.

**LOOSE STITCHES.** Thread that does not lie smoothly on the surface of the cloth.

**LUMP.** An internal imperfection of a suspension line that feels hard to the touch. Is usually caused by internal knots in core yarns or casings, or by slippage or displacement one or more inner core yarns near an overlap.

**MAIN SEAM.** See SEAM, RADIAL.

**MAINSLING, HARNESS.** See HARNESS, MAIN-SLING.

**MILDEW.** A damaging fungus or mold which forms on cloth and leather. It is caused by dampness and the absence of fresh air and sunlight.

**MIS-PICK.** An extra or incorrectly positioned filling thread.

**MISSING PICK.** A filling yard (pick) wholly or partially missing.

**MISSING STITCHES.** A space between stitches in same row in which there is no thread.

**MOUTHLOCKS.** A device which holds the mouth of the canopy closed until the lines are deployed.

**NAMEPLATE.** A label attached to equipment, giving data as to type, model number, date of manufacture, date placed in service, etc. The stenciled gore on a canopy is called the nameplate gore.

**NEEDLE DAMAGE.** Where needle penetration has damaged threads in the cloth.

**NYLON RIP-STOP.** See CLOTH, NYLON RIPSTOP.

**OPENING BANDS.** See SPRING ASSEMBLY, CONTAINER OPENING.

**OVEREDGE.** The stitching around the outer edge of cloth to prevent the edges from raveling or fraying.

**OVERFOLD.** An excess of material causing edge of inner fold to double, wrinkle or pleat.

**OVERLAP, CORE.** The overlapping of an incoming and outgoing suspension line inner core line.

**OVERTHROW STITCH.** See STITCH, OVERTHROW.

**PACK.** To put together compactly; to store neatly, for example, the act of packing a parachute consists of stowing suspension lines and canopy in the container assembly in such a way as to ensure safe storage and proper opening of the parachute assembly.

**PACK ASSEMBLY.** A rigged and packed parachute. See also CONTAINER.

**PACK STAND.** See STAND, CONTAINER.

**PACKING BAR.** See LONG BAR.

**PACKING BOARD.** A tool used to tension suspension lines with the anti-squid lines attached to the connector links. Basically it consists of a board and two large spools.

**PACKING FID.** See FID.

**PACKING HOOK.** See HOOK, PACKING.

**PACKING TRAY.** The suspension line stowage assembly on the NES-8B parachute assembly. It is a cloth covered board with hesitator tubes attached. After stowage of suspension lines the container is moved up around the tray. The tray is then secured by bolts which pass thru the bottom of the container.

**PALM, SEWING.** A hand protector which is used when sewing.

**PANEL.** See SECTION.

**PANEL, END.** See FLAP, END.

**PANEL, SIDE.** See FLAP, SIDE.

**PARACHUTE.** A device which offers resistance to the air, thereby decreasing the velocity of a descending body to permit landing at a suitable rate of descent.

**PARACHUTE ASSEMBLY.** A complete parachute, including the canopy assembly, container assembly, harness assembly and riser/lift web assembly.

**PARACHUTE, BACK-TYPE.** A parachute which is worn on the back in order to allow the wearer freedom of movement for example, NB-6 parachute assembly.

**PARACHUTE, CHEST-TYPE.** A parachute which is attached to D-rings on chest-type harness. It may be detached to permit more freedom of movement.

**PARACHUTE, DROGUE.** An auxiliary parachute used with any system that requires some method of deceleration or stabilization, for example, ejection seat.

**PARACHUTE, PILOT.** A small, spring-operated, cloth-covered auxiliary parachute which is usually constructed on a steel wire frame and attached to the peak of the canopy. It accelerates the withdrawal of the canopy from the container. The pilot parachute is packed under tension and immediately opens when released from the container.

**PARAFFIN.** Wax generally used with 50 percent beeswax as a hot dip to prevent the fraying of cut ends of webbing, cord and tape. See also BEESWAX.

**PARARAFT.** An emergency, one-man life raft packed in a container, along with survival equipment. The pararaft is secured to the parachute pack or seat pan.

**PART NUMBER.** A contractor, vendor, government, or manufacturer's drawing or reference number which provides positive identification without further reference to specific parts lists, model number, symbol numbers, special coding, or any other additional data when used in combination with the Federal Supply Code for Manufacturers.

**PH VALUE.** An indication of the acidity or alkalinity of a solution. A reading of pH may be made by the use of test strips. A reading below 7.0 indicates an acid. A reading above 7.0 indicates an alkaline.

**PICK.** A cloth filling thread, taken as a unit of fineness of cloth.

**PILE TAPE.** See TAPE, PILE.

**PILOT PARACHUTE FRAME.** Wire frame or spring used in a type of pilot parachute to initiate opening action of a parachute upon release from the container.

**PIN, RIPCORD LOCKING.** A small steel pin attached to a ripcord and passed thru a locking cone to hold a container in a closed position.

**PIN, SLIDE DISCONNECT.** A directional fastener which connects the withdrawal line and drogue link line on MBEU parachutes not designed for use with a guillotine. One portion connects to the ejection seat and the other is a metal sleeve around the drogue link line. Depending on the direction of pull, the lines will either remain attached, or the slide disconnect pin will be withdrawn and the line will separate.

**PIN, TEMPORARY LOCKING.** A metal pin inserted thru the eye of the locking cones to hold the side flaps in place until the ripcord pin is inserted.

**PLATE, ANCHOR.** A narrow metal plate used on MBEU parachute assemblies. It is attached to the end of the ripcord housing and has holes which fit over the container locking cones. When the ripcord pins are inserted in the locking cones the anchor plate is held in place, thus holding the ripcord housing in position.

**PLATE, LOCKING PIN.** A temporary locking pin attached to a thin, flat, rectangular metal plate. The pin-plate arrangement is used to temporarily lock the pilot parachute while the side flaps are being closed.

**PLEAT.** A fold sewn in cloth.

**POCKET, RIPCORD HANDLE.** A small pocket of cloth or plastic webbing sewn to the harness (or container assembly). It holds the ripcord handle in position.

**POCKETS, WATER DEFLATION.** Pockets sewn to the canopy at the skirt. After landing in water, they serve to anchor the canopy, causing the canopy to deflate. This prevents the canopy from dragging the aircrew-member thru water.

**PROTRUDING YARN (Core Casing or Thread).** A condition in which either the inner core yarns extend thru the casing, or where the yarn or threads of the casing extend beyond the surface of the casing itself.

**PULL DOWN VENT (PDV) LINE.** See LINE, SHORT ANTI-SQUID.

**PULL UP CORDS.** Nylon cords of varying lengths used to pull up the sides and ends of the container flaps over the container cover and to pull the cones thru the grommets. They are also used to pull the suspension lines into place in some types of containers.

**PYRO-BOX.** The container used to store pyrotechnic devices such as flares and cartridges while they are removed from the ammunition storage area.

**QUICK-DISCONNECTOR SNAP.** See SNAP, QUICK-CONNECTOR.

**QUICK-EJECTOR SNAP.** See SNAP, QUICK EJECTOR.

**QUICK-FIT ADAPTER.** See ADAPTER HARNESS FRICTION.

**RADIAL SEAM.** See SEAM, RADIAL.

**RAVEL (UNRAVEL).** To separate, untwist or unwind, leaving a frayed or ragged edge. Ravel is the preferred word to describe such a condition.

**RECEIVER ASSEMBLY, AUTOMATIC PARACHUTE RIPCORDER RELEASE.** That part of the cartridge-actuated automatic parachute ripcorder release which houses the aneroid, sear and hammer.

**REINFORCEMENT.** Any strengthening measure which enhances the basic integrity of a structure, joint or assembly, for example, the tape or webbing used to strength parts of a canopy, container, harness, etc., in a parachute assembly. See also WEBBING, REINFORCEMENT.

**RELEASE ASSEMBLY, RIPCORDER HOUSING, MANUAL.** An assembly which releases the ripcorder housing at the top end flap when the parachute is at full suspension line stretch.

**REMOVABLE CONNECTOR LINK.** See LINK, CONNECTOR.

**RETAINING SLEEVE.** A series of stowage tunnels.

**RIG.** To assemble and adjust, to equip. Example, the act of rigging a parachute assembly consists of assembling all component parts in preparation for packing.

**RING, VENT.** A molded rubber ring in the vent collar. It stretches when the air rushes in to the canopy as the parachute begins to inflate.

**RIPCORDER.** A locking device which secures the folded parachute within the container and which effects the release of the parachute. The ripcorder consists basically of locking pins, a flexible cable and a handle. See also BALL, CABLE RETAINING; CABLE, RIPCORDER; HANDLE, RIPCORDER; HOUSING, RIPCORDER; PIN, RIPCORDER LOCKING; POCKET, RIPCORDER HANDLE.

**RIPCORDER PIN RETENTION TIE.** A thread of a predetermined value that is usually secured to a lead ripcorder pin of a packed parachute. Its function is to retain a ripcorder pin in its cone and prevent premature disengagement of the pin from the cone. **USE ONLY AS AUTHORIZED.**

**RIP-STOP WEAVE.** See CLOTH, NYLON RIPSTOP.

**RISER.** The webbing which connects an integrated torso suit or harness to the canopy assembly on parachutes. The riser is composed of two risers, and there are two risers on each parachute assembly.

**RUNOFF.** Sewing not on a seam or cloth.

**RUPTURE.** One or more yarns of suspension line casing being cut or severed, sometimes exposing the inner core. Occasionally, tears, cuts or other forms of damage to the canopy are defined as a rupture when caused by dynamic load conditions.

**SADDLE.** That part of the main lift web of the harness which provides a seat or sling for the wearer.

**SAFETY-TIE.** A low strength thread which serves to indicate that an assembly has not been damaged, tampered with or opened since the last regular inspection.

**SEAM.** A series of stitches joining two or more pieces of cloth. For government work, the type of seam is indicated by a symbol which gives class of seam, the number of stitching, and the number of rows of stitching (Ref. ASTM-D-6193).

**SEAM, DIAGONAL.** A French-fell seam of canopy which joins two sections of gore. Diagonal seams meet the centerline of gore at angles of 45° and 135°.

**SEAM, FOUR-NEEDLE FOUR-STITCH.** A method of stitching which can be performed in one operation by a four-needle sewing machine. It is used in sewing the vent hem, skirt hem and radial seams of a canopy.

**SEAM, OVERLAP.** A seam in which the two pieces of cloth are joined by overlapping enough to accommodate one or more rows of stitching.

**SEAM, RADIAL.** A seam, joining two gores, which extends radially from the vent to the skirt hem.

**SEAM, TWO-NEEDLE TWO-STITCH.** A seam in one operation by a two-needle sewing machine, for example, a diagonal seam.

**SEAR.** To melt or seal with heat, for example, to sear the end of nylon webbing one heats the end until the nylon melts and fuzes. This prevents raveling. Also, the catch that holds the hammer of a firing mechanism cocked. The sear in an automatic parachute ripcord release is attached to the aneroid in the receiver assembly.

**SEAT PAN.** A sponge rubber covered metal seat which is contoured for comfort to the user. A seat pan is used with back-type parachutes when a packaged Life Raft Assembly is used. A high-speed seat pan has sections for support under the pilot's thighs during ejection. This reduces leg strain caused by high acceleration loads.

**SECTION.** Each major part of a gore. Sections are bordered by radial seams, diagonal seams or vent or skirt hems. In the 28-foot, flat canopy, four sections are used in each gore (previously known as panel).

**SELVAGE.** An edge of a woven fabric so formed as to prevent raveling, as compared to a cut edge, which will ravel.

**SEPARATOR, SMALL LINE.** A tool used to aid in keeping suspension lines and canopy skirt in order while packing a parachute.

**SERVICE LIFE.** The time period during which the item can be maintained in service without replacement.

**SERVING, FRENCH SPIRAL.** A series of turns and half-hitches using cord, line, etc. wound tightly around rope, braided line, etc., to bind it together. It has many uses in parachute fabrication and/or rigging but is generally giving way to other methods (i.e., machine sewing) because of time consumption of this handwork (Figure 10).



6.2-3404

**Figure 10. French Spiral Serving**

**SHOT BAG.** A bag filled with lead shot used to hold the canopy in place during packing.

**SKIPPED STITCHES.** Threads that are not interlocked.

**SKIRT, CANOPY.** The lower edge of a canopy.

**SNAP, QUICK-CONNECTOR.** A large, hookshaped, spring-loaded snap used to attach the chest type parachute to the two D-rings on the harness.

**SNAP, QUICK-EJECTOR.** A harness snap that attaches to the V-ring to secure two parts of the harness together. The ejector arm releases the V-ring when the finger grip lever is pulled outward.

**SOCKET, AUTOMATIC PARACHUTE RIPCORD RELEASE.** The part of the automatic parachute ripcord release which engages the ball on the power cable. This socket is attached to the piston by a rivet.

**SPLICE.** The joining of two strands or core ends by inter-weaving or mechanical joint.

**SPREADING GUN, BALLISTIC.** A device attached to suspension lines just below the skirt hem on the parachute assembly. Just before full suspension line stretch, the gun discharges and, by explosive force, spreads the skirt of the canopy.

**SPRING ASSEMBLY, CONTAINER OPENING.** Stretchable bands composed of a series of springs installed in a cloth with a hook at each end. They are installed under tension on the pack, to pull apart the end and side flaps after the ripcord is pulled.

**STAND, CONTAINER.** A rigid stand used to hold some parachute containers, as the Martin-Baker horse-shoe container, during part of the packing procedure.

**STIFFENER, CONTAINER.** A piece of metal or fiberglass or phenolic fiber placed in the container to stiffen the flaps. These strips are also used for stiffening and shaping the bottoms of several back-type containers.

**STITCH, BASTING.** A long, loose stitch made with single or double thread. Used to temporarily hold two or more pieces of material.

**STITCH, BOX.** Rectangular stitch pattern.

**STITCH, BUTTONHOLE.** A reinforced stitch, made on the edge of a slit or hole. Each individual stitch forms a half-hitch. The distance from the edge, and the spacing of the stitches is determined by the type of material used.

**STITCH, LOCKING OR LOCK.** See LOCKSTITCH

**STITCH, OVERTHROW.** A stitch used to repair weakened seams, reinforce slide fasteners and to join two pieces of material together.

**STITCHES PER INCH.** The number of needle penetrations where threads are interlaced, per linear inch.

**STITCH, ZIGZAG.** A stitch made by sewing machine which stitches alternately on two or more parallel lines, for example, it is used to reinforce and anchor the suspension lines to the canopy. The number of stitches per inch is determined by counting the number of points on one side per linear inch (Figure 11).

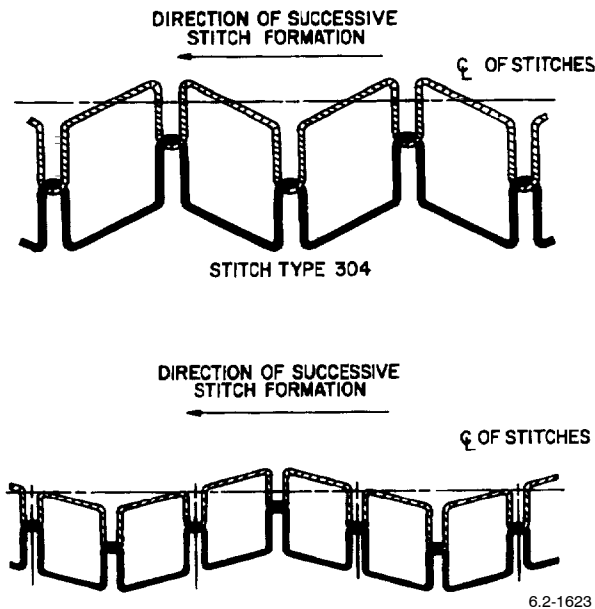


Figure 11. Zigzag Stitch

**STRIP BACK.** Broken thread filament(s) wrapped around the remaining thread forming an enlarged area on cloth.

**STRAP, CROSS CONNECTOR.** A short length of webbing sewn across the left web assembly or attached between suspension line connector links. It prevents streaming of a canopy in the event one riser was not properly attached to the harness.

**STRAP, HORIZONTAL BACK.** An adjustable part of harness webbing extending across the small of the wearer's back.

**STRAP, LAP RESTRAINT.** A strap attached to the parachute restraint harness suit to retain the rigid seat survival kit to the wearer. Prior to ejection it serves as safety restraint for the aircrewman.

**STRAP, PILOT PARACHUTE CONNECTOR.** Tubular nylon webbing which joins the main parachute and the pilot parachute.

**STRAP, SHOULDER RESTRAINT.** A short strap attached to the riser assembly on parachutes using the parachute restraint harness suit. The strap connects to the seat and serves to hold the aircrewmember in posi-

tion in the seat in case of buffeting, severe g-loads or ejection.

**STRAP, TENSION.** A strap which attaches to the apex of a canopy to keep the canopy and suspension lines taut during parts of the packing procedures.

**STOWING.** The act of putting away in a neat, orderly way. Stowing of suspension lines involves inserting the lines into the hesitator loops or stowage channels in such a way as to ensure proper paying out of lines when the parachute is opened. Stowing of the canopy involves folding and inserting the canopy into the container in such a way as to ensure proper opening of the canopy when the parachute is used.

**SURGEON'S KNOT TOPPED WITH SQUARE KNOT.** This combination of knots is used extensively for parachute assembly and other related aircrewmember survival equipment tackings (Figure 12).

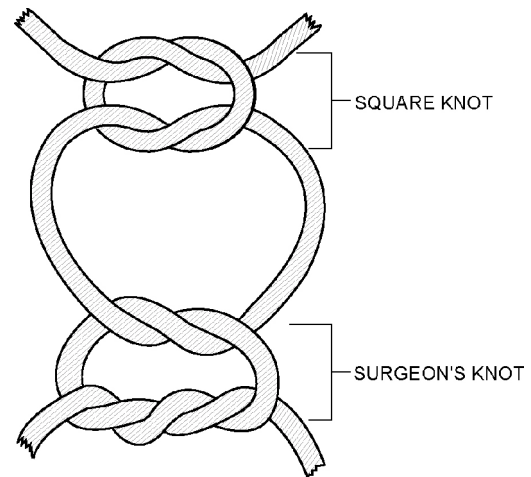


Figure 12. Surgeon's Knot Topped With Square Knot

**SURVEY.** A formal process by which a parachute or other accountable equipment is withdrawn from service or removed from records.

**SUSPENSION LINE.** See LINE, SUSPENSION.

**SWAGE.** To attach a device to a cable by means of pressure. A swaging machine compresses a fitting, causing it to grip tightly to the cable to which it is being attached.

**T-HANDLE.** A handle in the shape of the letter "T".

**TAB, ANCHOR.** A cloth loop attached to a metal plate and used on some MBEU parachute assemblies. It is placed over a locking cone and is used to secure the withdrawal line slide disconnect pin in position prior to operation.

**TAB, END.** An oval metal fitting secured to each end flap of seat-type Martin-Baker and chest-type parachute containers. The end tabs fit over the cones and secure the end flaps in a closed position until the locking pins are pulled.

**TACK (HANDTACK).** To attach temporarily prior to final sewing. Also, to tie temporarily as an aid in positioning. Also, to permanently secure portions of a parachute together, for example, the attachment of a seat cushion to a parachute container assembly.

**TAPE, FILAMENT.** An adhesive tape with fiber cords in the backing. The cords are usually fiberglass nylon, linen or other high strength material. This tape has high tensile strength along the lengthwise direction.

**TAPE, HOOK.** Strip of nylon tape with small nylon hooks on one side. Hook tape is used with pile tape as a fastener.

**TAPE, PILE.** A strip of nylon tape with small nylon loops on one side. Pile tape is used with hook tape as a fastener.

**TEMPORARY LOCKING PIN.** See **PIN, TEMPORARY LOCKING.**

**TENSION STRAP.** See **STRAP, TENSION.**

**TERMINAL END FITTING.** The end of the automatic parachute ripcord release arming cable which connects to the ejection seat, lap belt or other designated point.

**THIN SPOT (Suspension Line).** A condition whereby the diameter of the suspension line is seen visually to be less than other portions of the suspension line. This condition normally caused by broken inner cord yarn(s) or an improper overlap.

**THREAD, SEPARATION.** A bunching of threads in cloth, leaving a hole or separation in the cloth. A thread separation can run either with the warp or filling of a cloth.

**TIE, RIPCORD PIN RETAINING.** A low strength thread or cord used specifically to prevent ripcord pins from creeping and possibly causing inadvertent opening.

**TIGHT STITCHES.** Thread under excess tension causing one sewing thread to lie on the surface of the cloth or causing puckering of the cloth.

**TORQUE.** A force or combination of forces that tend to produce a rotating or twisting motion. Torque is

often expressed in pounds-inches or pounds-foot. A torque wrench is used to apply a measured torque.

**TOTAL LIFE.** Total life is the period of time starting with date of manufacture that an item may be retained in a packaged, out-of-service condition and remain acceptable for service.

**TUBULAR WEBBING.** See **WEBBING, TUBULAR.**

**TWIST.** Rotation of the suspension line casing induced generally during final assembly of the canopy, suspension lines and connector links.

**UNEVEN STITCHING.** Stitching wavy or number of stitches varying.

**V-RING.** A metal fitting shaped in the form of a closed letter "V". For example, V-rings, used with quick ejector snap fittings, secures a harness assembly on a wearer.

**V-TAB.** Webbing reinforcement at the point where the suspension line enters the canopy.

**VENT HEM.** The circular opening at the peak, or top of the canopy. As the parachute opens and descends, some of the air in the canopy escapes thru the vent hem, thus reducing the strain on the canopy and steady-ing decent. It is about 18-in. in diameter for personnel parachutes.

**VENT COLLAR.** See **COLLAR, VENT.**

**VENT RING.** See **RING, VENT.**

**WARNING FLAG.** A tag attached to an assembly indicating that the assembly is not operational. Often the flag is attached to safety-pins on pyrotechnic devices to indicate necessity of removal before operation. Also it is used to flag defective or incomplete equipment to preclude use.

**WAX, PARAFFIN.** See **PARAFFIN.**

**WEAVE SEPARATION.** Looseness of weave caused by strain or poor weaving.

**WEBBING, TUBULAR.** Strong synthetic or natural fiber webbing woven in the form of a tube.

**WET LOCKER.** A tower or compartment maintained for hanging parachutes which are damp or have been immersed in water.

**WHIPPING.** A method of wrapping or binding the ends of cord or line to prevent unraveling (Figure 13).



**Figure 13. Whipping**

**WHIPSTITCH.** A stitch used to join two pieces of webbing and to reinforce weak seams.

**YOKE AND PLATE ASSEMBLY.** The removable end of a connector link.

**ZIG-ZAG STITCH.** See STITCH, ZIG-ZAG.

### 13. SUPPORT EQUIPMENT.

a. Military specifications (MIL-X-XXX and MSXXX) are being converted from military standards to industry standards. For the textile and hardware specifications now owned by the Parachute Industry Association (PIA), only the owner designator letters have been changed. Some textile examples are: MIL-C-7020, which is now PIA-C-7020, MIL-W-4088 is now PIA-W-4088, and MIL-T-5038 is now PIA-T-5038. Hardware examples are: MS22021 is now PS22021 and MS70101 is now PS70101. New hardware or textiles received with the new designations have been reviewed by the appropriate government agency and are acceptable for use. These and other specification conversions can be found on the DOD specification web site:

<http://assist2.daps.dla.mil/quicksearch/>

Please contact the CFA if you need assistance.

b. The following is a list of all support equipment used in this manual, including standard shop tools and materials:

#### Standard Shop Tools

Part Number	Nomenclature
A-A-130 NIIN 00-205-1760	Adjustable Metal Stencil, 1/2-in.
—	Bolt Cutter
Refer to WP 005 00	Bodkin
—	C-Clamp
Refer to WP 005 00	Canopy Ties
—	Cartridge Tool, 1/2-in.
—	Cartridge Tool, 9/16-in.

Part Number	Nomenclature
TMRX10 NIIN 01-348-7323	Crowfoot, Socket, Wrench, 5/16-in.
—	Dowel
—	Driver, Hex Head, 1/4-in. Drive
TQS6 NIIN 01-274-3412	Driver, Torque, in-lbs.
Refer to WP 005 00	Fid, 8-in. or 12-in.
A-A-2311 NIIN 00-234-6537	File, Hand
GGG-G-17C NIIN 00-221-1999	Gauge, Thickness
—	Micrometer, 0-1-in. Outside
GGG-C-105 NIIN 00-050-5143	Micrometer, 0-8-in. Depth
FLUKE-77 NIIN 01-168-6856	Multimeter
*S7410	Nippers, Rigging
—	Nut Driver, 3/8-in.
—	Packing Closing Tool
Refer to WP 005 00	Packing Hook
Refer to WP 005 00	Packing Hook, 20-in.
Refer to WP 005 00	Pilot Parachute Pin Plate
Refer to WP 005 00	Pilot Parachute Temporary Locking Pin
M-100	Press
—	Punch, 1/8-in.
—	Punch, 15/32-in.
—	Screwdriver, Flat
268P-6 NIIN 00-675-0867	Screwdriver, Cross Tip, Size 6
BD122 NIIN 00-234-8913	Screwdriver, No. 2 Phillips
—	Screwdriver, Torque
—	Screwdriver, Torque 0-25 in-lbs.
—	Screwdriver, Torque, 1/4-in. Drive
11-1-3512 NIIN 00-092-8661	Separator, Line



Part Number	Nomenclature	Part Number	Nomenclature
—	Sewing Machine Needle, Size 22	—	Wrench, Socket, 3/4-in.
*S7010-6	Shears, Bent Trimmers 6-in.	—	Wrench, Socket, 3/8-in.
*S7010-8	Shears, Bent Trimmers 8-in.	—	Wrench, Torque, 3/8-in. Drive, 0-50 ft. lb.
*S7010-10	Shears, Bent Trimmers 10-in.	—	Wrench, Torque, 0-25 in.-lbs.
*S7010-12	Shears, Bent Trimmers 12-in.	TE51F NIIN 01-260-6872	Wrench, Torque (0-50 ft. lbs.)
GGG-S-00278 NIIN 00-293-9199	Shears, Straight Trimmers	TSQ-050 NIIN 00-177-6801	Wrench, Torque (0-96-in. oz)
CW16 NIIN 00-228-9506	Socket or Wrench, 1/2-in.	GGG-W-00686 NIIN 01-396-6070	Wrench, Torque (30-150 in.-lbs.)
—	Socket, Hexagonal, Head Key Wrench, 1/4-in. Drive	GGG-Y-0035 NIIN 00-985-6610	Yard Stick
3405AS101-2 NIIN 01-433-8386	Socket, Special 7/16 x 1/4-in. Drive	<b><u>Support Equipment</u></b>	
GGG-W-641	Socket Handle, 1/4-in. Drive	Part Number	Nomenclature
*S7425	Temporary Locking Pin, Cypres	MBEU68051 NIIN 01-091-9953	Aligning Rod (2)
Refer to WP 005 00	Temporary Locking Pin	711-07076-2 NIIN 01-256-8220	Altitude Chamber (Model 7000)
Refer to WP 005 00	Temporary Locking Pin Plate	MBEU149516	Block, Packing, Loose-Large
SA852AS105-1 NIIN 01-213-1989	Tool Set, Special	MBEU149526	Block, Packing, Loose-Small
SA852AS112 NIIN 01-274-3412	Torque Driver	MBEU149517	Block, Packing, Loose-Withdrawal Line
TQS6 NIIN 01-274-3412	Driver, Torque, in-lbs.	MBEU149009	Block, Packing, Press, Intermediate
Refer to WP 005 00	Wrench, Allen-Type Modified, 3/32-in., Short End 1/4-in.	MBEU149010	Block, Packing, Press, Long
—	Wrench, Open End, 1/4-in.	MBEU149008	Block, Packing, Press, Short
A-A-1358 NIIN 00-228-9504	Wrench, 3/8-in.	MBEU143003	Block, Support, Front
OEX100 NIIN 01-335-1280	Wrench, Combination, 5/16-in.	MBEU143002	Block, Support, LH
A-A-1356 NIIN 00-081-2304	Wrench, Open End, 5/16-in.	MBEU143001	Block, Support, RH
—	Wrench, Socket, 1/4-in.	MBEU143005	Block, Support, Lower
		MBEU143004	Block, Support, Rear
		MBEU143000	Box Assembly, Packing
		1401 or (*S7920) NIIN 00-090-4412	Button Die

Part Number	Nomenclature	Part Number	Nomenclature
1483 NIIN 00-509-8062	Die, Fastener Button	MBEU68049 NIIN 01-073-8247	Packing Pressure Block, (Large)
8244 NIIN 00-764-8985	Chart, Recording Instrument	MBEU68050 NIIN 01-074-9778	Packing Pressure Block, (Small)
*S7740	Chuck and Die Set 9/16-in.	MBEU149535	Packing, Support, Front
9766 NIIN 00-329-3346	Chuck, Punch 9/16-in.	MBEU149533	Packing, Support, LH
—	Cloth Wipes	MIL-C-83286 NIIN 01-397-3941	Paint, Polyurethane, Flat, Black
Procure Locally	Clothes Drier (With Low Speed Capability)	MIL-C-85285B	Paint Polyurethane, Type 1, Lusterless Black -or-
—	Curved Long Bar	MIL-P-23377	Primer, Epoxy
C-70513 NIIN 00-956-0081	Cutter, Nylon Webbing	Refer to WP 005 00	Parachute Container Holding Fixture A/P28S-28, 30, 31
1407 NIIN 00-144-2097	Die, Eyelet	PX-0 NIIN 00-043-3408	Pen, Marking
MIL-P-85582	Epoxy Primer, Coating Kit	—	Pencil, Indelible
Refer to WP 005 00	Fixture, Holding, Drogue Parachute Container	A-A-87 NIIN 00-240-1526	Pencil, Black, Thick
MBEU149527	Guide, Tray, Rigging Line	A-A-87 NIIN 00-181-7267	Pencil, Black, Thin
Refer to WP 005 00	Guide Tube	A-A-87 NIIN 00-282-7894	Pencil, Blue, Thin
MIL-H-45193 NIIN 00-785-1162	Heater, Gun Type	A-A-87 NIIN 00-174-3205	Pencil, Red, Thick
*S7975	Hot Knife	A-A-87 NIIN 00-282-3375	Pencil, Red, Thin
—	Laundry Bag, Cloth Mesh	MBEU149424	Pin, Removal
*S7320	Leverage Closing Device (A/P22P-21)	**3233K83	Pot, Melting, Electric
Refer to WP 005 00	Long Bar	MBEU143026 NIIN 99-301-1621	Press, Parachute Packing (A/P28S-32) GSU-342/E
Procure Locally	Marker Permanent, Sharpie, Fine Point	MBEU68750 NIIN 01-100-8917	Press, Parachute Packing (A/P28S-24)
—	Needle, Sewing	GG-P-655 NIIN 00-264-3718	Printing Set, Rubber Type
—	Needle, Sewing, Curved	Style No. 8 NIIN 00-976-4962	Printing Set, Rubber Type
A-A-55066 NIIN 00-237-4959	Needle, Upholsterers	9758 or (*S7928) NIIN 00-343-8210	Pull the Dot Button Die
*S7230	Packing Hook (A/P28S-32)		

Part Number	Nomenclature	Part Number	Nomenclature
8059 or (*S7926) NIIN 00-628-4265	Pull the Dot Socket Chuck	1410 or (*S7910) NIIN 00-144-2084	Socket Chuck
9760 or (*S7921) NIIN 00-329-3295	Pull the Dot Stud Chuck	1412 or (*S7890) NIIN 00-144-2088	Stud Chuck
—	Pull-Up Cord, 100 lb.	MBEU68042 NIIN 01-074-9795	Support Box Assembly, Packing Press
9323 NIIN 00-090-4401	Punch	MBEU68043 NIIN 01-073-8246	Support Box Packing Plate (Front)
1486 NIIN 00-329-3297	Punch, Stud Fastener	MBEU68044 NIIN 01-073-8255	Support Box Packing Plate (Rear)
MS17985C310 NIIN 00-097-6343	Quick Release Pin	MBEU68045 NIIN 01-073-8256	Support Box Packing Plate (Left)
—	Rod, Wood or Steel, 3/8-in. Rounded End	MBEU68046 NIIN 01-073-8257	Support Box Packing Plate (Right)
Locally Procure	Rubber Mat/Pad	MBEU68047 NIIN 01-073-8232	Support Box Packing Plate (Lower)
—	Rubber Stamp Kit	Refer to WP 005 00	Support Fixture
—	Ruler, 12-in.	Refer to WP 005 00	Suspension Line Stowing Aid
SK86-0089-1 NIIN 00-144-7250	Safety Pin Assembly	MIL-T-50036A NIIN 01-080-9589	Talc, Technical (Dusting Powder)
472P950D053-1 NIIN 00-171-3572	Safety Pin Assembly	5579245-1 NIIN 00-103-8531	Template, Parachute (Go-No-Go)
—	Safety Pin, Static Line	MBEU68053 NIIN 01-087-3841	Tensioner Locking Key (Spanner Wrench)
QQ-W-423 NIIN 00-186-9126	Safety Wire, 0.050-in.	ST86-0064-1 NIIN 00-556-6324	Test Fixture Firing Pin Pull Force (Spreading Gun)
ASTM A580 NIIN 00-892-4616	Safety Wire, 0.080-in.	ST86-0064-3 NIIN 00-125-9417	Test Fixture (Spreading Gun)
TMA2 NIIN 01-367-3453	Screwdriver Attachment 1/16-in. Bit Socket Wrench	DPP-50 NIIN 00-880-7583	Tester, Spring Resiliency (0-50 lb.)
Refer to WP 005 00	Shot Bag	DPP-100 NIIN 00-578-5285	Tester, Spring (0-100 lb.)
68D37721-3 NIIN 00-371-2243	Snap Ejector, with Removable Pin	F4069TH NIIN 00-505-0547	Thermohumidigraph
—	Soft Brush	Refer to WP 005 00	Tool, Securing, Mouthlocks
P-D-680, Type 2	Solvent, Dry Cleaning	MBEU68052 NIIN 01-087-1359	Tool, Transfer, Suspension Line
MBEU149518	Spacer, RH	SA852AS113 NIIN 01-285-5198	Torque Tool, Sensor Plug (Seawars)
Procure Locally	Stamp Pad		
128GT10156 NIIN 00-868-4996	Stand, Drogue Chute (MK-GRU7/MK-GRU7A/ MK-GRUEA7		
MBEU68048 NIIN 01-081-8022	Stick, Drogue Parachute Packing		

Part Number	Nomenclature	Specification or Part Number	Nomenclature
—	Wash Tub		
Procure Locally	Washing Machine (Tumble Type)	H-B-491 NIIN 00-297-6657	Brush, Paint
VVW95 NIIN 00-285-2044	Wax, Paraffin	MS51940-35 NIIN 00-821-5871	Buckle
MBEU149534	Wedge, Lid, Fitting	711-07026 NIIN 00-403-9755	Cable, Arming
<b><u>Materials</u></b>		MS27980-2N (3/8-in., Nickel) NIIN 00-276-6271	Cap, Snap Fastener
Specification or Part Number	Nomenclature		
MIL-A-9962 NIIN 00-967-5089	Abrasive Material	V-F-106 NIIN 00-281-4781	Chain, Interlocking Slide Fastener, Medium Duty
BEHR-TEX NIIN 01-065-9989	Abrasive Material, Woven, Types	CCC-C-440 NIIN 00-222-2423	Cheesecloth
O-A-51 NIIN 00-184-4796	Acetone, Technical	MIL-C-81706 NIIN 00-057-2354	Chemical Conversion Coating, Class 1A
015-710001-1 or 990065-1 NIIN 00-148-8492	Adapter Assembly (Male)	60A113D16-1 NIIN 00-572-6970	Clamp, Base Assembly
015-11366-1 or 990070-1 NIIN 00-986-8334	Adapter Assembly, Lap Belt (Male)	MIL-C-12369 NIIN 00-261-8516	Cloth, Ballistic, Natural, Type I
MIL-A-5540 NIIN 00-142-9913	Adhesive	MIL-C-5646 NIIN 00-191-3977	Cloth, Airplane, Cotton, Natural, Type A
MIL-A-46106 NIIN 00-148-7207	Adhesive, (Sealant)	MIL-C-20696 NIIN 01-102-7912	Cloth, Coated, Red, Type I, Class 3
MMM-A-121 NIIN 00-273-8716	Adhesive	CCC-C-419 NIIN 00-262-0438	Cloth, Cotton Duck, Olive Drab Green, Type III
O-E-760 NIIN 00-577-4889	Alcohol, Denatured	—	Cloth, Emery, 180 or Equal
MIL-P-265 NIIN 00-264-9031	Alcohol, Polyvinyl	MIL-C-7219 NIIN 00-261-8515	Cloth, Duck, Nylon, Green, Type II, Class 3
QQ-A-250/116061	16 Aluminum Alloy, 0.06 x 0.75 x 4.0-in.	MIL-C-3953 NIIN 00-229-6789	Cloth, Duck, Nylon, Sage Green, Class 2
362 NIIN 01-234-6838	Applicator, Disposable	MIL-C-7219 NIIN 01-173-4436	Cloth, Duck, Nylon, Sage Green, Type III, Class 3
A-A-1799 NIIN 00-837-7757 (or Commercial Equivalent)	Bag, Plastic	CCC-C-458 NIIN 01-157-9676	Cloth, Flannel White, Type III, Class 2
C-B-191 NIIN 00-253-1171	Beeswax, Technical	MIL-C-23070 NIIN 00-132-5009	Cloth, Laminated Blue
		MIL-C-85043 NIIN 00-044-9281	Cloth, Lint Free Cleaning, White

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Specification or Part Number	Nomenclature	Specification or Part Number	Nomenclature
MIL-C-508 NIIN 00-261-8140	Cloth, Oxford, Nylon, Green	MIL-F-21840 (Black) NIIN 00-935-6761	Fastener Tape, Hook, 1-in. Wide, Type II, Class 1
MIL-C-7020 NIIN 00-251-5889	Cloth, Parachute, Nylon, (Orange) Type I	MIL-F-21840 (Green) NIIN 00-106-5973	Fastener Tape, Hook, 1 1/2-in. Wide, Type II, Class 1
MIL-C-7020 NIIN 01-115-9168	Cloth, Parachute, Nylon, (Green) Type I	MIL-F-21840 (Black) NIIN 00-926-4931	Fastener Tape, Hook, 2-in. Wide, Type II, Class 1
MIL-C-7020 NIIN 01-189-7066	Cloth, Parachute, Nylon, (Sand) Type I	MIL-F-21840 (Green) NIIN 00-106-5974	Fastener Tape, Pile, 1-in. Wide, Type II, Class 1
MIL-T-43618 NIIN 00-176-1802	Cloth, Parachute, Mending, Pressure-Sensitive	MIL-F-21840 (Black) NIIN 00-006-9837	Fastener Tape, Pile, 1 1/2-in. Wide, Type II, Class 1
MIL-C-5040 NIIN 00-246-0688	Cord, Nylon, Olive Drab, Type III, 550 lbs.	MIL-F-21840 (Black) NIIN 00-926-4930	Fastener Tape, Pile, 2-in. Wide, Type II, Class 1
MIL-C-5040 NIIN 00-240-2154	Cord, Nylon, Natural, Type I, 100 lbs.	782AS100-4 NIIN 00-395-1870	Fitting End, Arming Cable
MIL-C-5040 NIIN 00-240-2146	Cord, Nylon, Natural, Type III, 550 lbs.	—	Foil
MIL-C-7515 NIIN 00-965-0473	Cord, Nylon, Olive Drab, Type V, 1500 lbs.	MIL-C-9084 NIIN 01-007-2672	Glass Cloth, Natural Class 2, Type VIIIB
***9512-300-UNT	Cord, Spectra 300 lb., Untreated	MS22048GC1 NIIN 00-483-2467	Grommet, 1/2-in.
O-D-1271 NIIN 00-995-4804	Diethylene Triamene (Hardener)	MS20230-B20 NIIN 00-291-0302	Grommet, Metallic, 5/32-in.
O-C-265 NIIN 00-107-1510	Distilled Water	MS22048C2 NIIN 00-250-0405	Grommet and Washer
MIL-E-5558 NIIN 00-263-3192	Enamel, Lusterless, Wrinkle-Finish, Type II, Black	MS20230B10 NIIN 00-231-6589	Grommet Assembly, 3/16 Size 0
BMS-10 NIIN 00-082-2450	Epoxy Primer, Yellow	MIL-I-6903 NIIN 00-144-9672	Ink, Marking, Parachute, Light Blue
MIL-P-23377 NIIN 01-139-3550	Epoxy Primer, Class 2	MIL-I-6903 NIIN 00-634-6583	Ink, Marking, Parachute, Orange-Yellow
60A113C28-1 NIIN 00-992-5577	Eye	TT-I-1795 NIIN 00-148-9817	Ink, Marking, Black
MIL-C-22787 NIIN 00-935-2831	Fabric, Red, Type IV USAF 1556	ASTMD3295	Insulation Sleeveing, Electric
		MIL-I-23053/5	Insulation Sleeveing, Electrical

Specification or Part Number	Nomenclature	Specification or Part Number	Nomenclature
TT-I-735 NIIN 00-286-5435	Isopropyl Alcohol, Technical	MS20427F4-9 NIIN 00-526-2958	Rivet, Solid
A-A-2787 NIIN 01-331-6106	Lacquer, White Lusterless, No. 37875	MS20470A6-4 NIIN 00-242-1582	Rivet, Solid
MIL-L-19537 NIIN 00-847-4968	Lacquer, Class 2, Olive Drab, Color-34087	MS20470DD2-3 NIIN 01-307-4680	Rivet, Solid
MIL-L-19537 NIIN 00-527-2496	Lacquer, Color Fed Std 13538 (Yellow)	MS20470B2-8 NIIN 00-205-7660	Rivet, Solid
MS22020-1 NIIN 00-862-5749	Link, Parachute Harness, Triangle	A-A-131 NIIN 00-243-3437	Rubber band, No. 18
MS20995F32 NIIN 00-684-4841	Lockwire, Size 0.032	MIL-R-1832 NIIN 00-568-0323	Rubber bands, Retaining, Type I
— (CAGE Code 45255)	Milled Glass Fibers (Glass Floc)	12059-11 NIIN 01-179-4948	Seal
60A113C1-1 NIIN 00-468-7072	Parachute Pack, Cone, 0.338 Grip	MIL-S-8802 NIIN 00-685-0915	Sealing Compound, Polysulphide, Type I, Class A
60A113C24-1 NIIN 00-572-7689	Parachute Pack, Cone, 0.410 Grip	MIL-S-22473 NIIN 00-067-6744	Sealing Compound
A-11 or B-11	Plastic Hydrocal (Locally Purchased)	F-900 Torque Seal (Color Optional) NIIN 01-125-0055	Sealing Compound
LP 00370 NIIN 00-476-5267	Plastic Sheet	MIL-S-22473 NIIN 00-081-2325	Sealing Compound, Grade H
MIL-P-46144 NIIN 01-024-8887	Plastic Sheet	MIL-S-45180 NIIN 00-656-1426	Sealing Compound, Type III
MIL-S-22473 NIIN 00-181-8372	Primer, Sealing Compound, Grade T, Form R	General Dispersion, Inc. 53-T LaFrance Ave. Bloomfield, NJ 07033	Sergene
MIL-P-8585 NIIN 01-290-4508	Primer, Zinc Chromate	— General Plastics Corp. Bloomfield, NJ 07003	Sergene Adhesive (Open Purchase)
00311 Dry Film Vydax Sprayon Products	Release Agent, (Cold Mold) (Open Purchase)	MIL-S-8660 NIIN 00-177-5094	Silicone Compound
015-10307-5 or 990055-1 NIIN 00-866-6878	Release Assembly, Lapbelt (Female)	Lenzip Manufacturing 1900 W. Kinzie St. Chicago, IL Catalog # 1031 (Open Purchase)	Slide Fastener, 3 1/2-in. Long Thong, Type IV, Style 8, Size MH
015-11365-1 or 990060-1 NIIN 00-997-6662	Release Assembly, Lapbelt (Female)	9005231 NIIN 00-578-4294	Sleeving, Insulation
MIL-R-9300	Resin, Epoxy, Type II, Grade D, Form A	V-F-106 NIIN 00-291-0195	Slider and Pull, Interlocking Slide Fastener, Medium Duty
MS20426AD4-9 NIIN 00-619-4093	Rivet, Solid		

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Specification or Part Number	Nomenclature	Specification or Part Number	Nomenclature
MS27980-1B (9/32-in., Black) NIIN 00-359-6844	Snap, Fastener, Button	V-F-106 NIIN 00-291-0197	Stop, Interlocking Slide Fastener, Open Type, Medium Duty
MS27980-8B (9/32-in., Black) NIIN 01-023-3843	Snap, Fastener, Eyelet	MS27980-7B (Black) NIIN 00-842-1879	Stud, Snap Fastener
MS27980-10B (13/32-in., Black) NIIN 01-026-0894	Snap, Fastener, Eyelet	MS27981-4B (Black) NIIN 00-901-9660	Stud, Snap Fastener
MS27981-1B (Black) NIIN 00-276-4954	Snap, Fastener, Button	MS27983-3 (Pull the Dot, Black) NIIN 00-276-4908	Stud, Snap Fastener
MS27983-4 (Pull the Dot, Black) NIIN 00-276-4978	Snap, Fastener, Eyelet	1791K10 NIIN 01-242-6473 (or Commercial Equivalent)	Tape, Duct
MS22017-1 NIIN 00-887-2150	Snap, Parachute Ejector	MIL-I-19166 NIIN 00-543-1597 or NIIN 00-612-8492	Tape, Insulation Electrical
MS27981-5B (3/16-in., Black) NIIN 00-250-6858	Snap, Fastener, Eyelet	A-A-52080-B-2 NIIN 00-753-6329	Tape, Lacing and Tying, Finish B, Size 2, Type I, Natural
MS27983-1 (Pull the Dot, Black) NIIN 00-891-9073	Snap, Fastener, Button	A-A-52080-B-2 NIIN 01-384-6100	Tape, Lacing and Tying, Type I, Finish B, Size 2, Black, 80 lbs.
MS27756 NIIN 00-020-4075	Snap Hook	PIA-T-5038	Tape, Nylon, Type III, 1/2-in., Class 1 or 1A
MS27767 NIIN 00-591-8336	Snap, Retainer	PIA-T-5038 NIIN 00-253-6264	Tape, Nylon, Type III, 1/2-in. Wide, Natural, Class 1 or 1A, 250 lbs.
Procure Locally	Soap (e.g., Ivory)	PIA-T-5038 NIIN 00-753-6144	Tape, Nylon, Type III, 1-in. Wide, Green, Class 1 or 1A, 525 lbs.
MS27980-6B (Black) NIIN 00-285-6250	Socket, Snap Fastener	PIA-T-5038 NIIN 01-155-0462	Tape, Nylon, Type II, 1-in. Wide, Class 1 or 1A
MS27980-6N (Nickel) NIIN 00-276-4946	Socket, Snap Fastener	PIA-T-5038 NIIN 00-261-8579	Tape, Textile Reinforcing, Nylon, Type IV, 1-in. Sage Green, Class 1 or 1A
MS27981-3B (Black) NIIN 00-276-4966	Socket, Snap Fastener	PIA-T-5608 NIIN 00-496-9905	Tape, Nylon, Type II, 3/8-in. Natural, 18 lbs.
MS27983-2 (Pull the Dot, Black) NIIN 00-893-6243	Socket, Snap Fastener		
1100/82	Spandex Fabric		
V-F-106 NIIN 00-276-4938	Stop, Interlocking Slide Fastener, Close Type, Medium Duty		

Specification or Part Number	Nomenclature	Specification or Part Number	Nomenclature
PPP-T-97 NIIN 00-802-8311	Tape, Pressure Sensitive Type II, 3/4-in. Wide	VVW95 NIIN 00-285-2044	Wax, Paraffin
A-988 NIIN 00-420-0507	Test Kit, Alkacid	PIA-W-5664 NIIN 00-263-3602	Webbing, Elastic, Cotton, Type I, Black, Class 2
MIL-T-81772 NIIN 00-181-8080	Thinner, Aliphatic	PIA-W-5625 NIIN 00-082-5752	Webbing, Nylon, Tubular, 1/2-in., Natural, 1000 lbs.
A-A-52094 NIIN 00-895-6543	Thread, Cotton, Size 30/3, Red	PIA-W-4088 NIIN 00-262-1643	Webbing, Nylon, 1-in., Yellow, Type II Class 1, 1A, or 2, 600 lbs.
V-T-295 NIIN 00-227-1244	Thread, Nylon, Size FF, Type I or II, Olive Drab, Class A, 17.5 lbs.	PIA-W-4088 NIIN 00-260-6909	Webbing, Nylon, 9/16-in., Olive Drab, Type I, Class 1, 1A, or 2, 500 lbs.
V-T-295 NIIN 00-244-0603	Thread, Nylon, Size A, Type I or II, Olive Drab, Class A, 2.8 lbs.	PIA-W-4088 NIIN 00-782-3224	Webbing, Nylon, 3/4-in., Olive Drab, Type IA, Class 1, 1A, or 2, 600 lbs.
V-T-295 NIIN 00-244-0609	Thread, Nylon, Size E, Type I or II, Olive Drab, Class A, 9 lbs.	PIA-W-4088 NIIN 00-260-6910	Webbing, Nylon, 1-in., Olive Drab, Type II, Class 1, 1A, or 2, 600 lbs.
V-T-295 NIIN 00-262-2775	Thread, Nylon, Size 3, Type I or II, Olive Drab, Class A, 27 lbs.	PIA-W-4088 NIIN 00-261-8856	Webbing, Nylon, 9/16-in., Olive Drab, Type I Class 1, 1A, or 2, 500 lbs. Abrasion Resistant
V-T-295 NIIN 00-559-5211	Thread, Nylon, Size 6, Type I or II, Olive Drab, Class A, 54 lbs.	PIA-W-4088 NIIN 00-281-3013	Webbing, Nylon, 1 23/32-in., Olive Drab, Type VI, Class 1, 1A, or 2, 2500 lbs.
MIL-T-2520 NIIN 00-270-5469	Twine, Fibrous, Natural, Type I, 6-Ply	PIA-W-4088 NIIN 00-531-2449	Webbing, Nylon, 3-in., Olive Drab, Type IV, Class 1, 1A, or 2, 1800 lbs.
8089ABX NIIN 00-828-4936	Uralane, Adhesive	PIA-W-4088 NIIN 00-261-8585	Webbing, Nylon, 1 23/32-in., Olive Drab, Type VIII, Class 1, 1A, or 2 4000 lbs.
60A113C25-1 NIIN 00-158-3785	Washer, Flat	PIA-W-4088 NIIN 00-261-8846	Webbing, Nylon, Type IX Class 1, 1A, or 2, 9000 lbs.
MS22048WC2 NIIN 00-282-9527	Washer, Flat	PIA-W-4088 NIIN 00-281-3012	Webbing, Nylon, 1 23/32-in., Olive Drab, Type XII, Class 1, 1A, or 2 1200 lbs.
MS20230-WB10 NIIN 00-810-7709	Washer, Metallic, 5/32-in.		
Procure Locally	Water Softener		



Specification or Part Number	Nomenclature		
PIA-W-4088 NIIN 00-260-4585	Webbing, Nylon, 1 23/32-in., Type XIII, Class 1, 1A, or 2, 7000 lbs.	Aviation Crew Systems Manual, Aircrew Personal Protective Equipment (Clothing)	NAVAIR 13-1-6.7-2
PIA-W-4088 NIIN 00-530-1489	Webbing, Nylon, 1 23/32-in., Olive Drab, Type XXVII, Class 1, 1A, or 2, 6500 lbs.	Aviation Crew Systems Manual, Aircrew Personal Protective Equipment (Helmets and Masks)	NAVAIR 13-1-6.7-3
PIA-W-4088 NIIN 01-014-6744	Webbing, Nylon, 2 1/4-in., Type XXVIII, Class 1, 1A or 2, 8700 lbs.	Aviation Crew Systems Manual, Oxygen Equipment	NAVAIR 13-1-6.4
PIA-W-5625 NIIN 00-262-1653	Webbing, Nylon, Tubular, Sage Green, 1-in., 4000 lbs.	Aviation Crew Systems Manual, Rescue and Survival Equipment	NAVAIR 13-1-6.5
MS20995CY20 NIIN 01-047-6455	Wire, Copper, 0.020-in.	Cartridges and Cartridge- Actuated Devices	NAVAIR 11-100-1.1
Suggested Sources:		Contractor and Government Entity	H-4/H-8
*Para-gear Equipment Co. INC. 3839 West Oakton St. Skokie, IL 60076-3438 Phone (847) 679-5905 FAX (847) 679-8644 www.para-gear.com		Maintenance Instruction Manual	NAVAIR 01- 60GAB-2-2-2
**McMaster-Carr 6100 Fulton Industrial Blvd. Atlanta, GA 30336-2852 www.mcmaster.com		Naval Aviation Safety Program	OPNAVINST 3750.6
***CSR Inc. 3235 State Road Sellersville, PA 18960 Phone (215) 453-0600		Naval Aviation Maintenance Program Manual	OPNAVINST 4790.2
		Aviation Crew System Seat Survival Kits (Oxygen Hoses and Non-SKU Series Seat Kits)	NAVAIR 13-1-6.3-1
		Aviation Crew System Seat Survival Kits (SKU Series Seat Kits)	NAVAIR 13-1-6.3-2
		Uniform Source, Maintenance and Recoverability (SM&R) Codes	NAVAIRINST 4423.3

## 14. REFERENCE MATERIAL.

a. The following publications supplement the information presented in this manual:

Aviation Crew Systems Manual, NAVAIR 13-1-6.7-1  
Aircrew Personal Protective  
Equipment (Aircrew/Passenger)

## 15. RECORD OF APPLICABLE TECHNICAL DIRECTIVES.

a. The following technical directives have been incorporated in this manual.

<u>Type/No.</u>	<u>Date</u>	<u>Title and ECP No.</u>	<u>Date Inc.</u>	<u>Rescission Date</u>
ACC 380 Rev A	30 Sep 87	Stowage of Survival Items and O <sub>2</sub> Mini-Regulator (EP 2)	1 Oct 89	30 Jun 93
ACC 380 Rev A Amend 1	17 Jun 88	Stowage of Survival Items and O <sub>2</sub> Mini-Regulator (EP 2)	1 Oct 89	30 Jun 93
ACC 380 Rev A Amend 2	4 Aug 88	Stowage of Survival Items and O <sub>2</sub> Mini-Regulator (EP 2)	1 Oct 89	30 Jun 93
ACC 380 Rev A Amend 3	25 Sep 89	Stowage of Survival Items and O <sub>2</sub> Mini-Regulator (EP 2)	1 Oct 90	30 Jun 93
ACC 417	1 Jun 82	NES-8B Parachute Withdrawal Line Assembly Modification (ECP 41)	1 Nov 82	31 Dec 86
ACC 425	28 Jan 82	NES-12 Parachute Lumbar Pad Support Modification (ECP 45R1)	15 Jun 82	31 Dec 86
ACC 435 Rev A	15 Jan 87	Flashlight Attachment to Harness Configured with ACC 380 (RAMEC P-26-81)	1 Oct 89	31 Dec 90
ACC 438	11 Mar 83	NES-12 Parachute Cross-Connec- tor Strap, Replacement (ECP 78R1)	1 Jun 83	30 Jun 88
ACC 438 Amend 1	11 Mar 83	NES-12 Parachute Cross-Connec- tor Strap, Replacement (ECP 78R1)	1 Jun 83	30 Jun 88
ACC 440	1 Feb 84	NES-14 Parachute Cross-Connec- tor Strap Replacement of (ECP-106)	1 Jun 84	31 Dec 89
ACC 446 Rev A	9 Jan 85	Parachute Harness Sensing Re- lease Unit, Installation of (ECP-93)	31 Dec 86	31 Dec 89
ACC 446 Rev A Amend 1	12 Dec 85	Parachute Harness Sensing Re- lease Unit, Installation of (ECP-93)	31 Dec 86	31 Dec 89
ACC 450	17 Mar 86	Installation of Improved Slug Design (ECP-24632-132)	1 Oct 89	31 Dec 91
ACC 471	22 Mar 85	NES-12 Riser Protection Sheath (RAMEC P-34-84)	1 Aug 92	30 Jun 89
ACC 478	27 Feb 89	Modification to Support OBOGS Installation (EPC 135)	1 Oct 89	30 Jun 99
ACC 478 Amend 1	18 Dec 89	Modification to Support OBOGS Installation (EPC 135)	1 Jan 91	30 Jun 99
ACC 478 Amend 2	1 Jun 91	Modification to Support OBOGS Installation (EPC 135)	1 Aug 92	30 Jun 99

<u>Type/No.</u>	<u>Date</u>	<u>Title and ECP No.</u>	<u>Date Inc.</u>	<u>Rescission Date</u>
ACC 491	13 Mar 86	NES-12 Container Base Plate Protector Flap, Extender Tab Installation (RAMEC P-34-84)	1 Oct 89	30 Jun 91
ACC 494 Amend 2	28 Oct 86	NES-12 EPC Bridle Protection Flap, Installation (RAMEC P-12-85)	1 Oct 89	31 Dec 91
ACC 494 Amend 1	7 May 87	NES-12 EPC Bridle Protection Flap, Installation (RAMEC P-12-85)	1 Feb 92	31 Dec 91
ACC 494 Amend 2	20 Jul 88	NES-12 EPC Bridle Protection Flap, Installation (RAMEC P-12-85)	1 Feb 92	31 Dec 91
ACC 497	28 Oct 86	NB-6 Lumbar Pad Installation (RAMEC T-03-86)	1 Oct 89	30 Jun 91
ACC 497 Amend 1	31 Mar 87	NB-6 Lumbar Pad Installation (RAMEC T-03-86)	1 Oct 89	30 Jun 91
ACC 497 Amend 2	25 Jun 87	NB-6 Lumbar Pad Installation (RAMEC T-03-86)	1 Oct 89	30 Jun 91
ACC 510	11 May 88	NB-6 Arming Cable Terminal Fitting and Lanyard Stowage Pocket (RAMEC T-07-86)	1 Oct 89	30 Jun 92
ACC 518 Rev A	1 Jun 91	Replacing AN/PRC-90 Radio Set With AN/PRC-90-2 Radio Set (ECP 10856R1)	1 Aug 92	30 Jun 99
ACC 538	15 Nov 88	A/P28S-30, -31, Drogue Parachute Riser Keeper Shielding (RAMEC 05-88)	1 Oct 89	31 Dec 93
ACC 538 Amend 1	8 Dec 88	A/P28S-30, -31, Drogue Parachute Riser Keeper Shielding (RAMEC 05-88)	1 Oct 89	31 Dec 93
ACC 539	17 Nov 88	NES-12 EPC Release Mechanism Cam Assembly (RAMEC R-02-87)	1 Oct 89	31 Dec 93
ACC 546	18 Jul 89	A/P28S-24 Front Riser Protector, Canopy Abrasion Cover and Lower Steering Line Modification (RAMEC P-01-88)	1 Feb 92	30 Jun 94
ACC 549	18 Jun 89	PCU-33/56P Parachute Restraint Harness Holster Handgun Pocket (RAMEC L-36-87)	1 Oct 90	30 Jun 94

<u>Type/No.</u>	<u>Date</u>	<u>Title and ECP No.</u>	<u>Date Inc.</u>	<u>Rescission Date</u>
ACC 551	23 Oct 89	Installation of Protective Cover for Ejection Seat Controller Drogue Parachutes (RAMEC L-08-89)	1 Feb 92	31 Dec 94
ACC 568	3 Apr 91	PCU-33/56P Stowage Pocket for HEED (RAMEC L-44-89)	1 Aug 92	30 Jun 96
ACC 568 Amend 1	31 Aug 92	PCU-33/56P Stowage Pocket for HEED (RAMEC L-44-89)	1 Aug 92	30 Jun 96
ACC 568 Amend 2	3 May 93	PCU-33/56P Stowage Pocket for HEED (RAMEC L-44-89)	1 Aug 92	30 Jun 96
ACC 577	30 Nov 93	NES-14 Stowage Tray Mounting (ECP 16264)	1 Oct 94	31 Dec 01
ACC 584	5 Jan 93	Establishment of the PCU-17/P and 68E417-10 Safety Strap As Authorized SAR/Loadmaster Restraint System for the P-3 and C-2 Aircraft (RAMEC P-13-90)	1 Oct 93	31 Dec 97
ACC 584 Amend 1	7 May 93	Establishment of the PCU-17/P and 68E417-10 Safety Strap As Authorized SAR/Loadmaster Restraint System for the P-3 and C-2 Aircraft (RAMEC P-13-90)	1 Oct 93	31 Dec 97
ACC 585	13 May 93	A/P28S-32 Riser Protective/Cover (RAMEC P-14-92)	1 Oct 94	31 Dec 98
ACC 587	8 Jul 93	NES-12 Protective Cover (RAMEC P-14-90)	1 Oct 93	31 Jan 97
SEC 5073	30 Jul 91	Socket Modification SEAWARS Cartridge Installation	1 Aug 92	30 Dec 96
ACC 592	8 Feb 94	NES-14 Riser Protective Cover (RAMEC R-01-91)	1 Oct 94	2 Feb 99
ACC 597	9 Mar 94	PCU-33/56P Modification for Removable OBOGS/Bracket/Mini Regulator	1 Oct 95	31 Dec 97
ACC 597 Rev A	8 Apr 03	Modification of the PCU-59/P and PCU-59A/P Integrated Parachute Restraint Harness Assemblies with a CRU-103 Oxygen Regulator Pocket (WUC 96A3C00). For NALCOMIS Optimize Users, WUC (96A31) (ECP-16452)	1 Dec 03	31 Dec 2005
ACC 623	14 Feb 96	PCU-33/56P Riser Restraint Keeper (RAMEC P-08-95)	1 Jul 96	31 Dec 2003
ACC 623 Amend 1	14 Mar 96	PCU-33/56P Riser Restraint Keeper (RAMEC P-08-95)	1 Jul 96	31 Dec 2003

<u>Type/No.</u>	<u>Date</u>	<u>Title and ECP No.</u>	<u>Date Inc.</u>	<u>Rescission Date</u>
ACC 623 Amend 2	21 Mar 96	PCU-33/56P Riser Restraint Keeper (RAMEC P-08-95)	1 Jul 96	31 Dec 2003
ACC 623 Amend 3	24 Apr 96	PCU-33/56P Riser Restraint Keeper (RAMEC P-08-95)	1 Jul 96	31 Dec 2003
ACC 633	14 Sep 98	Replacement of LPU-23/P Floatation Device with the Low Profile Floatation Collar (LPFC) on PCU-33/P (Series) and PCU-56/P (Series) Integrated Parachute Restraint Harnesses (96A30)	1 Jan 00	31 Dec 2006
ACC 633 Rev A	13 Sep 00	Replacement of LPU-23/P Floatation Device and LPU-33/P LPFC with LPU-36/P on PCU-33/P (Series) and PCU-56/P (Series) Integrated Parachute Restraint Harnesses (96A30) (ECP-16387)	1 Jan 01	30 Jun 2008
ACC 633 Rev A, Amendment 1	29 Oct 01	Replacement of LPU-23/P Floatation Device and LPU-33/P LPFC with LPU-36/P on PCU-33/P (Series) and PCU-56/P (Series) Integrated Parachute Restraint Harnesses (96A30) (ECP-16387) and to include the PCU-58/P (Series) Integrated Parachute (Restraint Harness to the basic Equipment	1 Jun 02	30 Jun 2008
ACC 667 Part 2	11 Mar 02	A/P28S-28, A/P28S-30, A/P28S-31 Headrest Assemblies in TAV-8B AV-8B Aircraft, Installation of Four-Line Release System and Over-Inflation Control Line (WUC1774O, WUC174AO, WUC1749O) ECP-16416	1 Jun 02	31 Dec 2004
ACC 672 Amendment 2	30 Jan 03	A/P28S-32(V) 1, 2, 3, 4, 6 Parachute Lower Riser Cover Installation (RAMEC PAX 4613-02-02)	1 Apr 03	30 Jun 2007
ACC 674	22 Jan 03	Modification of the Integrated Parachute Restraint Harness, PCU-56P/(WUC96A3800), PCU-57P/(WUC96A3A00) and PCU-58P/(WUC96A3B00) for Joint Helmet Mounted Cueing System (JHMCS)	1 Apr 03	31 Dec 2004
AFC (TBD)	(TBD)	Installation of A/P22P-21 Crew Back Pack Assembly	1 Apr 03	(TBD)

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